The rare earths race entails difficult choices

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Mining is dirty work. But it's the work of the future, given the burgeoning demand for the rare earth minerals that power our electronic devices, electric vehicles and the green technologies such as lithium batteries to which the world is transitioning. China currently dominates in rare earth and critical mineral mining and refining. But the US has plenty of room to increase its own capacity, if it's able to mine at home and build supply partnerships abroad.

This is no easy task. I had lunch recently with Melissa Sanderson, the president of American Rare Earths. This US mining company has three major concessions in Arizona, Wyoming and Nevada, rich in rare earths such as allanite, neodymium, praseodymium and scandium, which are used in the clean tech and defence industries.

Her company is ahead of the game, in the sense that the concessions aren't on public or tribal lands, which reduces the risk of a fight with progressive interests that don't want mining in these areas. But even so, says Sanderson, permitting will probably take at least six years, and only then can production ramp up over the course of many more. "We desperately need a fast track for the production of these crucial resources at home," she says.

Right now, the US has only one operational rare earth mine, owned by a company called MP Materials and located in the Mojave Desert. It mines around 14 per cent of the global supply of rare earths, according to minerals expert Nayantara Hensel, the chief economist at Seaborne Defense. But the Mojave mine has shifted ownership several times and its previous owner went bankrupt in 2015. This underscores the boom-bust cycles inherent in mining and many commodity industries.

The Biden administration is clearly concerned about supply. It flagged the importance of securing more critical minerals in the 2021 supply chain report issued by the White House. And the Inflation Reduction Act offers a $3,750 tax credit for consumers that buy electric vehicles made with minerals extracted or processed in the US.

But as Jennifer Harris, who stepped down two weeks ago from her post as chief economist at the National Security Council notes, unless supply is dramatically ramped up, minerals inflation would overwhelm the benefits of such a credit. "Even now, with very modest shortfalls in the market for lithium during the past two years, you've seen prices increase around 800 per cent," she says. "If the current trends hold, we could have shortfalls several-fold larger beginning around 2027, which could be around one-quarter of global demand by 2030. These crucial minerals are the new oil, and we are massively underinvested in capacity and the technology to mine."

The mining industry, Harris points out, is a "great example of how markets aren't always perfectly efficient when left to their own devices". While companies such as MP Materials are finally getting support from the defence department, critical minerals and rare earth mining has had very little public sector intervention or long-term strategic investment over the past 30 years in the US or Europe.

This is true of many extractive industries with the notable exception of oil. It took the 1974 OPEC oil embargo to create the International Energy Agency, which has a collective action mechanism that allows countries to co-ordinate their strategic petroleum releases in times of inflation or crisis.

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Policy experts like Harris, and many others including Karen Kornbluh, the co-author of a new German Marshall Fund paper on technology and foreign policy, believe we need to use similar strategies now. This will help to build coalitions that secure supply and set floors under markets in critical minerals in a decoupling world.

There are nascent efforts, including the Minerals Security Partnership involving the US, UK, Australia and Finland. But more funding is needed for production, exploration and the complex technologies involved. Speed is of the essence. Hensel points out that Sweden recently announced a large rare earth deposit, but expects that it will take 10-15 years to ramp up production.

The US and its allies may also have to make some tough choices about who their friends are when it comes to the "friend-shoring" of crucial minerals. As the GMF report notes, China controls 61 per cent of global lithium refining, and 70 per cent of the global supply of cobalt for lithium ion batteries comes from mines in the Democratic Republic of Congo, many of which are owned by the Chinese. China controls 100 per cent of the processing of natural graphite used for battery anodes, and 80 per cent of the total rare earth production and processing.

The Biden administration is leaving plenty of wriggle room in the portions of the Inflation Reduction Act that deal with critical minerals, including the loosely defined "free trade agreement countries" which creates plenty of space for creative interpretation of the rules.

But even the countries that the US and its partners could conceivably add to a buyers club or strategic reserve coalition — nations such as Chile, Argentina, Columbia, Brazil or Mexico, all of which have some reserves — are hardly pillars of liberal democracy. There will be hard choices to be made between ramping up dirty industries at home, and partnering with problematic bedfellows abroad.

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